NOISE ELEMENT

City of Ceres General Plan

City of Ceres
Planning and Community Development
2220 Magnolia Avenue
P.O. Box 217
Ceres, CA 95307-0217

City of Ceres General Plan

NOISE ELEMENT

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NOISE ELEMENT GOALS AND OBJECTIVES

Goals

The overall goals of the City of Ceres Noise Element are to protect the citizens of the City of Ceres from the harmful and annoying effects of exposure to excessive noise, and to protect the economic base of the City of Ceres by preventing incompatible land uses from encroaching upon existing noise-producing uses.

Objectives

1. To abate and prevent excessive noise exposures by adopting specific policies and an implementation program which require effective noise mitigation measures in the design of new noise-generating and new noise-sensitive land uses.

2. To provide sufficient noise exposure information so that the land use planning and project review processes may effectively address existing and potential noise impacts.

3. To protect areas in the city where the present noise environment is within acceptable limits.

Policies

The following specific policies are adopted for implementation by the City of Ceres to accomplish the goals and objectives of the Noise Element:

1. Noise created by locally-regulated noise sources associated with new projects or developments shall be controlled so as not to exceed the noise level standards as set forth below as measured at any affected residentially designated lands or land use situated in either the incorporated or unincorporated areas. New residential development shall not be allowed where the ambient noise level due to locally-regulated noise sources will exceed the noise level standards as set forth below.

TABLE 1
Exterior Noise Level Standards
for Locally-Regulated Noise Sources

Noise Level Descriptor	Daytime (7 am to 10 pm)	Nighttime (10 pm to 7 am)
Hourly L_{eq}, dBA	55	45
Maximum level, dBA	75	65

Each of the noise level standards specified above shall be reduced by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

2. The compatibility of proposed projects with existing and future noise levels due to traffic on public roadways, railroad line operations and aircraft in flight shall be evaluated by comparison to Figure 1.

3. Areas within the City of Ceres shall be defined as noise-impacted if exposed to existing or projected exterior noise levels exceeding either 60 dB L_{dn}/CNEL or the performance standards of Table 1.

4. New development of residential land uses will not be permitted in noise-impacted areas unless the project design includes effective mitigation measures to reduce noise to the following levels:

A. For noise due to traffic on public roadways, railroad line operations and aircraft in flight: 60 dB L_{dn}/CNEL or less in outdoor activity areas, and 45 dB L_{dn}/CNEL or less in indoor areas. Where it is not possible to reduce exterior noise to 60 dB L_{dn}/CNEL or less by incorporating a practical application of the best available noise-reduction technology, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed. Under no circumstances will interior noise levels be permitted to exceed 45 dB L_{dn}/CNEL with the windows and doors closed.

B. For noise sources other than those described in Section 4A: achieve compliance with the performance standards contained within Table 1.

5. The compatibility of land uses other than residential uses shall be determined by comparison to Figure 1 and with any specific performance standards of the Zoning Ordinance. Noise produced by commercial uses shall not exceed 75 dB L_{dn}/CNEL at the nearest property line. Noise produced by industrial uses shall not exceed 80 dB L_{dn}/CNEL at the nearest property line. Exceptions to these standards may be granted if recorded noise easements are granted by adjoining property owners.

6. Before approving proposed development of new residential land uses in a noise-impacted area, an acoustical analysis shall be required. The acoustical analysis shall be required in the environmental review process so that noise mitigation may be included in the project design. The acoustical analysis shall:

A. Be the responsibility of the applicant.

B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.

C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

D. Estimate existing and projected (20 years) noise levels in terms of

L_{dn}/CNEL and/or the standards of Table 1, and compare those levels to the adopted policies of the Noise Element.

E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

F. Estimate noise exposure after the prescribed mitigation measures have been implemented. If the project does not comply with the adopted standards and policies of the Noise Element the analysis must provide acoustical information for a statement of overriding considerations for the project.

G. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

7. The City of Ceres shall develop and employ procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are implemented as part of the project review and building permit processes.

8. The City of Ceres shall enforce the State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code (UBC). In accordance with Title 24, an acoustical analysis shall be prepared for all new developments of multi-family dwellings, condominiums, hotels and motels within the 60 dB L_{dn}/CNEL contour of a major noise source. (The purpose of Title 24 is to document that an acceptable interior noise level of 45 dB L_{dn}/CNEL or below will be achieved. UBC Chapter 35 requires that common wall and floor/ceiling assemblies within multi-family dwellings comply with minimum standards for the transmission of airborne sound and structure-borne impact noise.)

9. The City of Ceres shall actively support enforcement of California Vehicle Code sections relating to adequate vehicle mufflers and modified exhaust systems.

10. New equipment and vehicles purchased by the City of Ceres shall comply with noise level performance standards consistent with the best available noise reduction technology.

11. A draft noise control ordinance to regulate existing noise sources shall be prepared and considered in accordance with the following policies and procedures:

A. The draft ordinance shall consider California Office of Noise Control guidelines and noise control ordinances of other California cities.

B. The intent of the draft ordinance shall be to protect persons from excessive levels of noise which interfere with sleep, communication, relaxation, health or legally permitted use of property, whether such noise is from existing or future sources.

C. "Excessive" levels of noise shall be defined as levels which exceed the standards of Table 1 and other policies of the Noise Element.

D. The draft noise ordinance may contain maximum allowable levels of interior noise created by exterior sources.

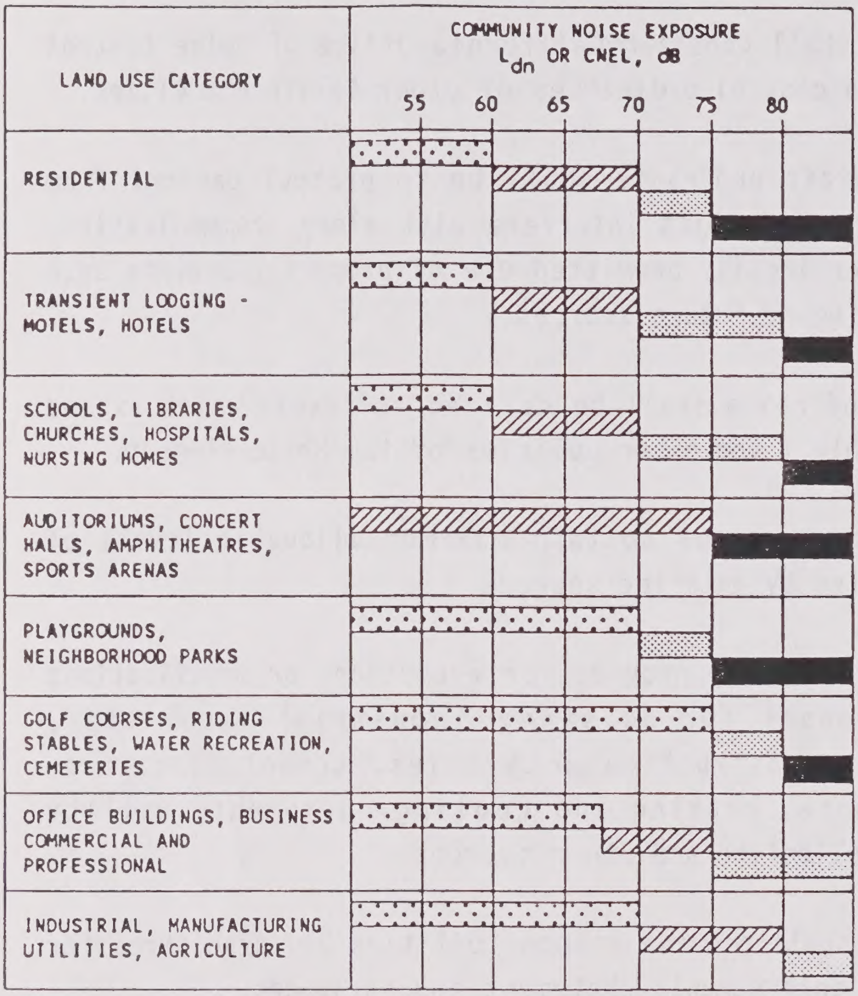
E. The draft noise ordinance may provide for exemptions or modifications to noise requirements for existing industrial facilities, agricultural uses, construction activities, school functions, property maintenance, heating and cooling equipment, utility facilities, waste collection and other sources.

F. The draft ordinance shall provide responsibilities and procedures for noise measurements, enforcement, abatement and variances.

12. The City of Ceres shall periodically review and update the Noise Element to ensure that noise exposure information and specific policies are consistent with changing conditions within the community and with noise control regulations or policies enacted after the adoption of this Element.

FIGURE 1

LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



INTERPRETATION

NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

New construction or development should generally be discourged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and the needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

INTRODUCTION

The purposes of the Noise Element are to provide mechanisms to mitigate existing noise conflicts, and to minimize future noise conflicts by the adoption of policies and implementation measures designed to achieve land use compatibility for proposed development.

The contents of a Noise Element and the methods used in its preparation have been determined by the requirements of Section 65302 (f) of the California Government Code and by the "Guidelines for the Preparation and Content of Noise Elements of the General Plan" adopted and published by the California Office of Noise Control (ONC) in 1976. The ONC Guidelines require that certain major noise sources and areas containing noise sensitive land uses be identified and quantified by preparing generalized noise exposure contours for current and projected conditions within the community. Contours may be prepared in terms of either the Community Noise Equivalent Level (CNEL) or the Day-Night Average Level (L_{dn}), which are descriptors of total noise exposure at a given location for an annual average day. It is intended that the noise exposure information developed for the Noise Element be incorporated into the General Plan to serve as a basis for achieving land use compatibility within the community. It is also intended that noise exposure information be used to provide baseline levels for use in the development and enforcement of a local noise control ordinance to address noise produced by non-preempted noise sources. The City of Ceres recognizes that the Noise Element does not apply to workplace noise exposures, which are regulated by Federal and State agencies.

DESCRIPTION OF NOISE

Noise is often defined simply as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. Researchers for many years have grappled with the problem of translating objective measurements of sound into directly correlatable measures of public reaction to noise. The descriptors of community noise in current use are the results of these efforts, and represent simplified, practical measurement tools to gauge community response. Before elaborating on these descriptors, it is useful to first discuss some fundamental concepts of sound.

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, now called Hertz (Hz) by international agreement.

The speed of sound in air is approximately 770 miles per hour, or 1,130 feet/second. Knowing the speed and frequency of a sound, one may calculate its wavelength, the physical distance in air from one compression of the atmosphere to the next. An understanding of wavelength is useful in evaluating the effectiveness of physical noise control devices such as mufflers or barriers, which depend upon either absorbing or blocking sound waves to reduce sound levels.

To measure sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the hearing threshold as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range.

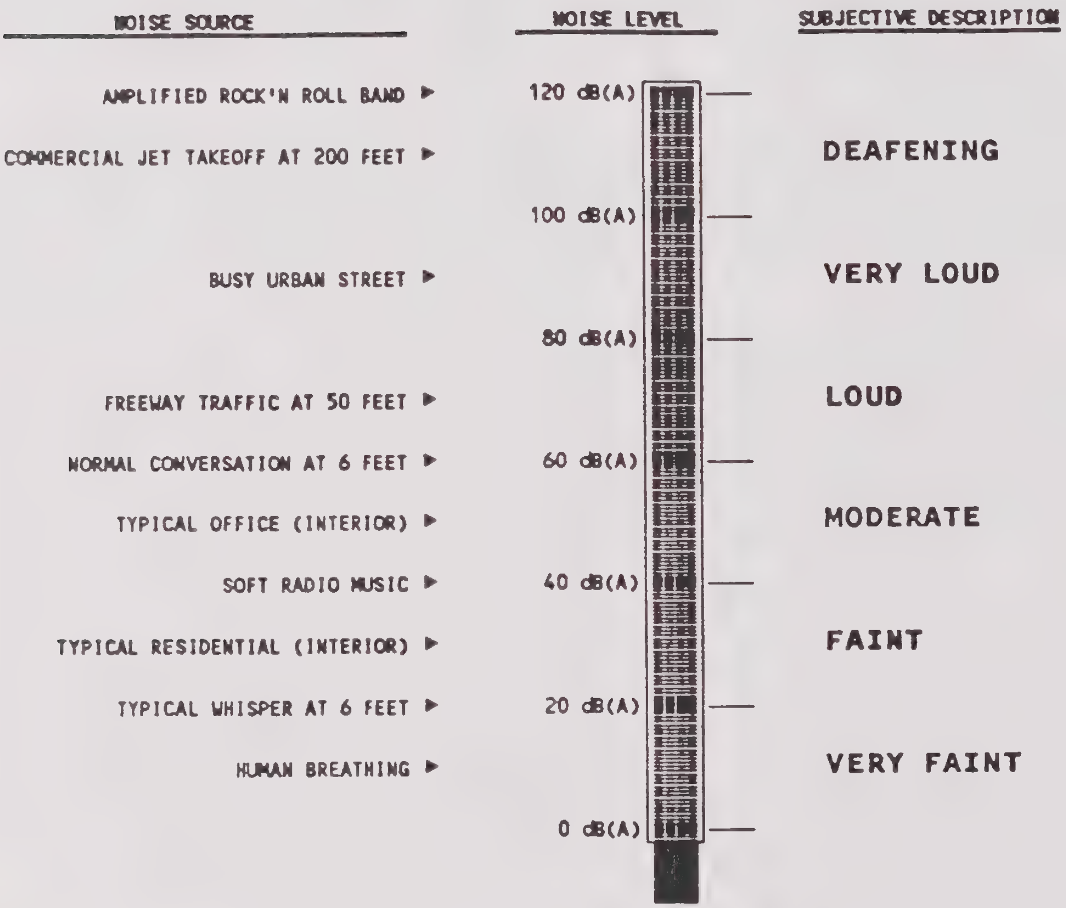
Use of the decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) are uniform throughout the scale, corresponding closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, in the range of usual environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighting the frequency response of a sound level measurement device (called a sound level meter) by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. Figure 2 illustrates typical A-weighted noise levels and subjective reaction due to recognizable sources.

It is common to describe community noise in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which is the sound level corresponding to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptors such as L_{dn} and CNEL, and shows very good correlation with community response to noise.

Two composite noise descriptors are in common use today: L_{dn} (Day-Night Level) and CNEL (Community Noise Equivalent Level). The L_{dn} is based upon the average hourly L_{eq} over a 24-hour day, with a +10 decibel weighting applied to nighttime (10:00 p.m. to 7:00 a.m.) L_{eq} values. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were subjectively twice as loud as daytime exposures. The CNEL, like L_{dn}, is based upon the weighted average hourly L_{eq} over a 24-hour day, except that a +4.77 decibel penalty is applied to evening (7:00 p.m. to 10:00 p.m.) hourly L_{eq} values. The CNEL was developed for the California Airport Noise Regulations, and is applied specifically to airport/aircraft noise assessment. The L_{dn} descriptor is a simplification of the CNEL concept, but the two will usually agree, for a given situation, within 1 dB. Like the L_{eq}, these descriptors are also averages and tend to disguise short-term variations in the noise environment. Because they presume increased evening or nighttime sensitivity, they are best applied as criteria for land uses where nighttime noise exposures are critical to the acceptability of the noise environment, such as residential developments.

FIGURE 2
EXAMPLES OF NOISE LEVELS



Noise in the community has often been cited as being a health problem, not in terms of actual physiological damage such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from the interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment

for people decreases. This decrease in acceptability and the threat to public well-being is the basis for land use planning policies directed towards the prevention of exposure to excessive community noise levels.

To control noise from fixed sources which have come into existence by processes other than zoning or land use planning, many jurisdictions have adopted community noise control ordinances. Such ordinances are intended to abate noise nuisances and to control noise from existing sources. They may also be used as performance standards to judge the potential creation of a nuisance, or potential encroachment of sensitive uses upon noise-producing facilities. Community noise control ordinances are generally designed to resolve noise problems on a short-term basis (usually by means of hourly noise level criteria), rather than on the basis of 24-hour or annual cumulative noise exposures.

In addition to the A-weighted noise level, other factors should be considered in establishing criteria for noise sensitive land uses. For example, sounds with noticeable tonal content such as whistles, horns, or droning or high-pitched sounds may be more annoying than the A-weighted sound level alone will suggest. Many noise standards apply a penalty, or correction, of 5 dBA to such sounds. The effects of unusual tonal content will generally be more of a concern at nighttime, when residents may notice the sound in contrast to background noise.

Because many rural residential areas experience very low noise levels, residents may express concern about the loss of "peace and quiet" due to the introduction of a sound which was not audible previously. In very quiet environments, the introduction of virtually any change in local activities will cause an increase in noise levels. A change in noise level and the loss of "peace and quiet" is the inevitable result of land use or activity changes in such areas. Audibility of a new noise source and/or increases in noise levels within recognized acceptable limits are not usually considered to be significant noise impacts, but these concerns should be addressed and considered in the planning and environmental review processes.

CRITERIA FOR ACCEPTABLE NOISE EXPOSURES

The State Office of Noise Control (ONC) "Guidelines for the Preparation and Content of Noise Elements of the General Plan", include recommended exterior

and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The ONC guidelines contain a land use compatibility table which describes the compatibility of different land uses with a range of environmental noise levels in terms of L_{dn} or CNEL. A noise environment of 50 to 60 dB L_{dn} or CNEL is considered to be "normally acceptable" for residential uses according to those guidelines. The ONC recommendations also note that, under certain conditions, more restrictive standards than the maximum levels cited may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by 5 to 10 dB to reflect lower existing outdoor noise levels.

The U.S. Environmental Protection Agency (EPA) also prepared guidelines for community noise exposure in the publication "Information on the Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety". These guidelines are based upon assumptions regarding acceptable noise levels which consider occupational noise exposure as well as noise exposure in the home. The "Levels Document" recognizes an exterior noise level of 55 dB L_{dn} as a goal to protect the public from hearing loss, activity interference, sleep disturbance and annoyance. The EPA notes, however, that this level is not a regulatory goal, but is a level defined by a negotiated scientific consensus without concern for economic and technological feasibility or the needs and desires of any particular community. The EPA and other Federal agencies have adopted suggested land use compatibility guidelines which indicate that residential noise exposures of 55 to 65 dB L_{dn} are within acceptable limits.

The ONC and EPA land use compatibility criteria are especially well suited to describing annoyance due to noise from transportation-related noise sources, where their correlation with public response has been well documented. The annoyance which may be caused by other noise sources such as industrial operations is not as well described by the L_{dn} and CNEL metrics, which offer no mechanisms for direct control of intermittent noise events or noise containing tonal components.

To respond to the inability of the L_{dn} and CNEL descriptors to effectively control locally-regulated noise sources, the State Office of Noise Control has prepared a Model Community Noise Control Ordinance, which employs the median noise level (L_{50}) and other time-weighted measures to define

allowable noise level limits. The ONC model contains general recommendations for local noise level standards, reporting a range of L_{50} values consistent with different environments. The model provides a framework for noise performance standards for locally-regulated noise sources which may be incorporated into the Noise Element.

EVALUATION OF EXISTING AND FUTURE NOISE ENVIRONMENTS

Overview

Based on discussions with the City of Ceres staff regarding potential major noise sources, it was determined that there are several potentially significant sources of community noise within the City of Ceres. These sources include traffic on major roadways and highways, railroad operations, industrial activities and the Modesto City-County Airport.

Analytical noise modeling techniques and noise measurements were used to develop generalized L_{dn} noise contours for the major roadways, railroads and industrial noise sources in the City of Ceres for existing (1988-1989) and future conditions.

Analytical noise modeling techniques make use of source-specific data including average levels of activity, hours of operation, seasonal fluctuations, and average levels of noise from source operations. Analytical methods have been developed for a number of environmental noise sources including roadways, railroad line operations, railroad yard operations, industrial plants and airports. Such methods will produce reliable results as long as data inputs and assumptions are valid for the sources being studied. The analytical methods used in this report closely follow recommendations made by the State Office of Noise Control, and were supplemented where appropriate by field-measured noise level data to account for local conditions. It should be noted that the noise exposure contours presented in this document are based upon annual average conditions, and are not intended to be site-specific where local topography, vegetation or intervening structures may significantly affect noise exposure at a particular location.

A community noise survey was conducted to describe existing noise levels in noise-sensitive areas within the City of Ceres so that noise level

performance standards could be developed to maintain an acceptable noise environment.

Roadways

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop L_{dn} contours for all highways and major roadways in the City of Ceres. The FHWA Model is the analytical method presently favored for traffic noise prediction by most state and local agencies, including Caltrans. The FHWA Model is generally considered to be accurate within 1.5 dB.

Traffic data representing annual average traffic volumes for existing conditions were obtained from Caltrans and the City of Ceres as summarized in Appendix B. The day/night distribution of traffic and the truck mix was based upon Caltrans and City of Ceres traffic counts, and estimates by Brown-Buntin Associates, Inc. Using these data and the FHWA methodology, traffic noise levels as defined by L_{dn} were calculated for existing (Year 1988) and projected future (Year 2045) traffic volumes. Distances from the center of the roadway to L_{dn} contour values of 60, 65 and 70 dB are summarized in Table II. Input data are presented in Appendix B.

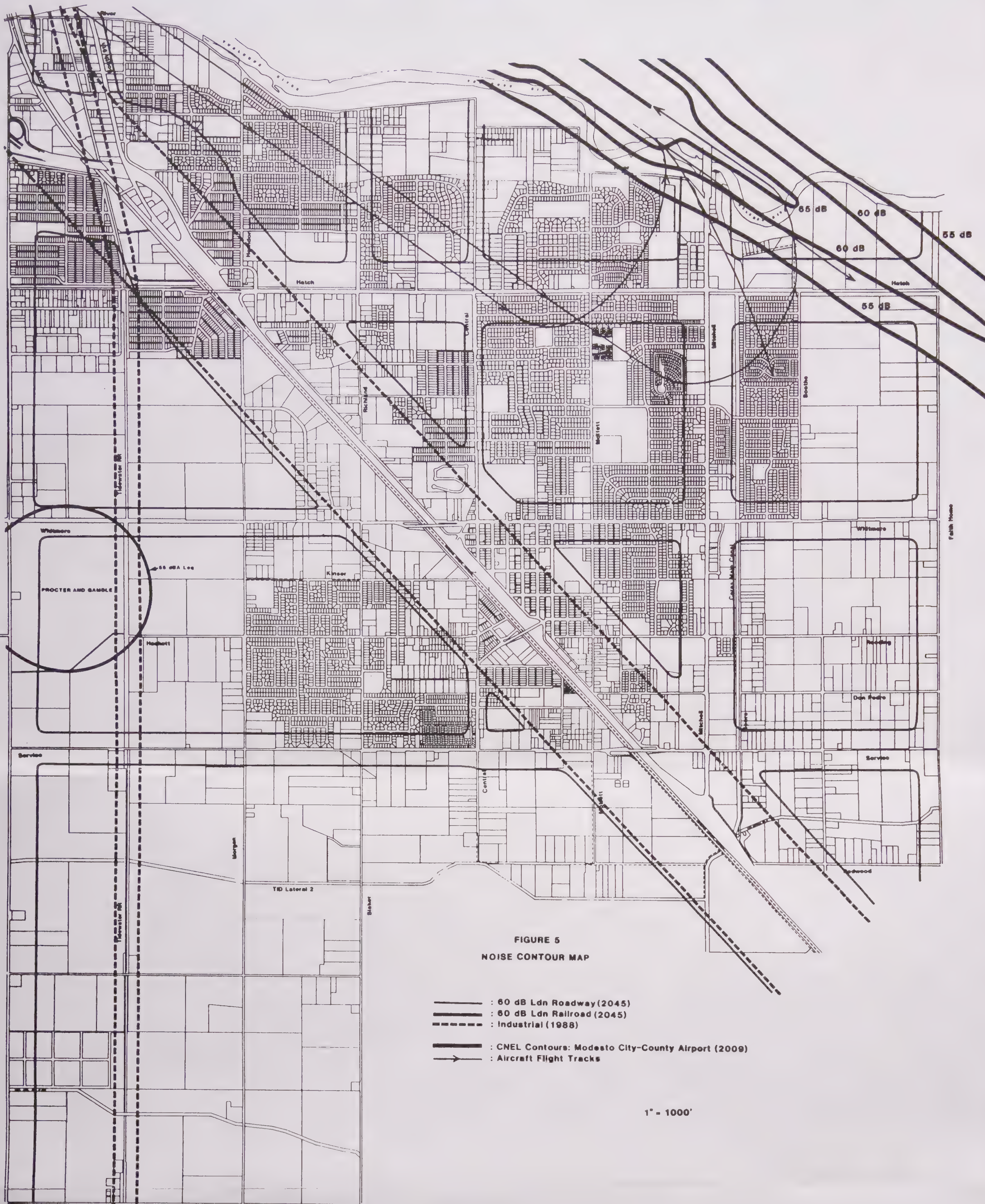
Because the noise contour calculations did not consider shielding caused by local buildings or topographical features, the distances reported in Table II are worst-case estimates of noise exposure along roadways in the community.

TABLE II
NOISE CONTOUR DATA
DISTANCE (FEET) FROM CENTER OF ROADWAY
TO L_{dn} CONTOURS

Segment Nos.	Description	1988			2045		
		60 dB	65 dB	70 dB	60 dB	65 dB	70 dB
Highway 99:							
1	Crows Landing to Hatch Road	1218	565	262	1633	758	352
2	Hatch Road to Service Road	1249	580	269	1633	758	352
South Ninth Street:							
4	River Road to Hatch Road	153	71	33	242	112	52
Richland Avenue:							
5	Herndon Road to Hatch Road	65	30	14	228	106	49
6	Hatch Road to River Road	79	37	17	271	126	58
Hatch Road:							
7	Highway 99 to Herndon Road	448	208	96	577	268	124
8	Herndon Road to Stonum Road	451	209	97	652	303	141
9	Stonum Road to Central Avenue	404	187	87	652	303	141
10	Central Avenue to Moffett Rd.	381	177	82	716	332	154
11	Moffett Road to Mitchell Road	428	199	92	716	332	154
12	Mitchell Road to Boothe Road	231	107	50	716	332	154
Central Avenue:							
13	River Road to Hatch Road	46	21	10	181	84	39
14	Hatch Road to Richard Way	82	38	18	181	84	39
15	Richard Way to Casswell Ave.	85	40	18	181	84	39
16	Casswell Avenue to Whitmore	92	43	20	181	84	39
17	Whitmore to Magnolia	54	25	12	194	90	42
18	Magnolia to El Camino Avenue	43	20	9	194	90	42
19	SPRR Track to Pine St.	40	18	9	194	90	42
20	Pine Street to Service Road	65	30	14	194	90	42

TABLE II (cont'd)
NOISE CONTOUR DATA
DISTANCE (FEET) FROM CENTER OF ROADWAY
TO L_{dn} CONTOURS

Segment Nos.	Description	1988 60 dB	1988 65 dB	1988 70 dB	2045 60 dB	2045 65 dB	2045 70 dB
El Camino Avenue:							
21	Whitmore Avenue to Pine St.	87	41	19	180	83	39
22	Pine Street to Service Road	42	19	9	85	40	18
Mitchell Road:							
23	River Road to Hatch	472	219	102	571	265	123
24	Hatch to Fowler	358	166	77	546	254	118
25	Fowler to Whitmore	350	162	75	546	254	118
26	Whitmore to Roeding	346	161	75	613	285	132
27	Roeding to Service Road	337	156	73	598	278	129
Service Road:							
28	Morgan to Central Avenue	84	39	18	394	183	85
29	Central Avenue to Mitchell	134	62	29	446	207	96
30	Mitchell to City Limits	99	46	21	461	214	99
Crows Landing Road:							
31	So. 7th Street to Whitmore	377	175	81	548	255	118
32	Whitmore to Service Road	264	123	57	662	307	143
Whitmore Avenue:							
33	Morgan to Highway 99	155	72	33	319	148	69
34	Highway 99 to Central Avenue	169	78	36	349	162	75
35	Central Avenue to Moffett	211	98	46	420	195	90
36	Moffett to Tenth	207	96	45	422	196	91
37	Tenth to Mitchell	224	104	48	422	196	91
38	Mitchell to Booth Road	143	67	31	442	205	95
Faith Home Road:							
39	Hatch to Redwood	73	34	16	471	219	102
40	North of Hatch	--	--	--	325	151	70



CITY OF CERES
SPHERE OF INFLUENCE

Railroad Line Operations:

Two major rail lines serve the Ceres area. The mainline of the Southern Pacific railroad runs along Highway 99, while the Union Pacific railroad mainline runs generally North-South west of Morgan Road. Representatives of these companies were contacted in February 1989 to determine the number of current and projected daily operations in the Ceres area, and descriptions of the types and lengths of trains were obtained.

Reported current (1989) daily railroad operations are summarized by Table III. No specific forecasts of future railroad operations were available. Given the relatively stable nature of railroad activity, it is not expected that future operations will be significantly different from those occurring at this time. Therefore the noise contours for current and projected future railroad operations are identical. Railroad line operation noise contours have been plotted on City base maps.

TABLE III
REPORTED RAILROAD OPERATIONS
City of Ceres
1989

Railroad	Segment	Daily Operations	Speeds
Southern Pacific Transportation Co.	All	30 Freight	45 mph
Union Pacific	West of Ceres	4 Freight	25 mph

To ensure that railroad noise modeling methods would accurately portray noise levels in the Ceres area, a series of noise measurements was performed at a representative location. The measured single event noise levels are summarized by Table IV.

TABLE IV
SUMMARY OF RAILROAD NOISE MEASUREMENT DATA
City of Ceres
Railroad Avenue at Industrial Way
2/15/89

Time	RR	Type	Locos	Cars	Speed (mph)	Distance (feet)	L_{max}, dBA	SEL dBA	Horn
11:30	SP	Freight	2	50	50	65	92.8	103.1	no
12:50	SP	Freight	4	70	50	65	100.5	109.6	no
14:45	SP	Freight	4	50	50	65	93.5	101.8	no

Based upon the measured single event noise levels and the operational information provided by the railroad companies, the L_{dn} due to railroad operations was calculated at a reference distance of 100 feet from the railroad centerline for each rail line. These values were compared to those obtained using the "Simplified Procedures for Assessment of Noise Emitted by On-Line Railroad Operations", prepared by Wyle Laboratories in 1974. This method is commonly recommended by the State Office of Noise Control, and is considered to be reasonably accurate for generalized noise contour development. The L_{dn} values calculated from the Ceres area noise measurement data were typically within 0.5 dB of projections using the Wyle methodology. The noise measurement data were therefore used to develop the railroad noise contours which are depicted in this document.

Industrial Facilities

The production of noise is an inherent part of many industrial processes, even when the best available noise control technology is applied. Noise production within an industrial facility is controlled by Federal and State employee health and safety regulations (OSHA and Cal-OSHA), but exterior noise emissions from industrial operations have the potential to exceed locally acceptable standards at noise sensitive land uses.

From a land use planning perspective, industrial noise control issues focus upon two objectives: to prevent the introduction of new noise-producing uses

in a noise sensitive area, and to prevent encroachment of noise sensitive uses upon existing industrial facilities. The first objective can be achieved by applying noise performance standards to proposed new industrial uses. The second objective can be met by requiring that new noise sensitive uses in proximity to existing industrial facilities include mitigation measures to ensure compliance with noise performance standards.

The following descriptions of existing industrial noise sources in the City of Ceres are intended to be representative of the relative noise impacts of such uses, and to identify specific noise sources which should be considered in the review of development proposals in their environs. The locations of these noise sources are shown by Figure 3.

Projection of future levels of activity at industrial facilities are generally not available from the operators. For this reason, the noise contours depicting current and projected future operations are identical. For this document, industrial noise contours are plotted in terms of the average (L_{eq}) noise level or the maximum (L_{max}) noise level to allow comparison to performance standards for non-transportation noise sources.

Northern Refrigerated Transportation, Inc.:

The Northern Refrigerated Transportation (NRT) trucking terminal is located on the north side of Roeding Road between Mitchell Road and the Ceres Main Canal. This facility was the subject of an acoustical analysis by Brown-Buntin Associates, Inc. in May 1988. According to that analysis, the chief noise sources at NRT are engine and compressor units on refrigerated trailers stored on the property. Noise is also produced by trucks entering and leaving the property. On weekends, 25 to 35 loaded trailers may be stored on the property; 5 to 10 loaded trailers may be stored there on weekdays. The refrigeration units on the loaded trailers are estimated to operate about 60% of the time during Summer and 25% of the time during the Winter. About 100 to 200 truck trips per day are estimated to occur during weekdays, with about one-half that number on weekends. About 80% of the truck trips are estimated to occur during daytime hours.

According to the acoustical analysis, noise levels produced by NRT operations would be less than 60 dB L_{dn} at the nearest residential lots, assuming that an 8-foot high noise barrier was in place along the northern and eastern perimeters of the property.

Ceres Porta-Mix Concrete:

This concrete batch plant is located at 6th Street and Roeding Road, and is typically in operation from 7:30 a.m. to 3:30 p.m. According to the plant operator, about 7 loads of concrete are sold per weekday, and 25 to 30 loads are sold per weekend day. Unlike many other concrete batch plants, this facility supplies only portable concrete trailers with 1-2 yards capacity. The only significant noise source is the batch plant, which is effectively masked at the property line by noise from traffic on Highway 99. There is no significant noise impact associated with this operation.

Procter and Gamble:

This manufacturing plant, located at the corner of Whitmore and Crow's Landing Roads, produces disposable diapers on a continuous basis. The major noise sources are fans used for dust collectors, which generate relatively constant noise levels 24 hours/day. There are no noise-sensitive land uses in the immediate vicinity of this facility. Based upon noise level measurements conducted in December 1986 and January 1987, the generalized 60 dB L_{dn} contour is located approximately 2200 feet from the center of the plant complex.

General Foods:

This large food processing plant is located north of Whitmore Road west of the SPRR tracks. The major noise sources are fans which produce relatively constant noise levels 24 hours/day. There are no noise sensitive land uses in the immediate vicinity of this facility. Noise level measurements in February 1989 indicated that the 60 dB L_{dn} contour would be contained within the property boundaries.

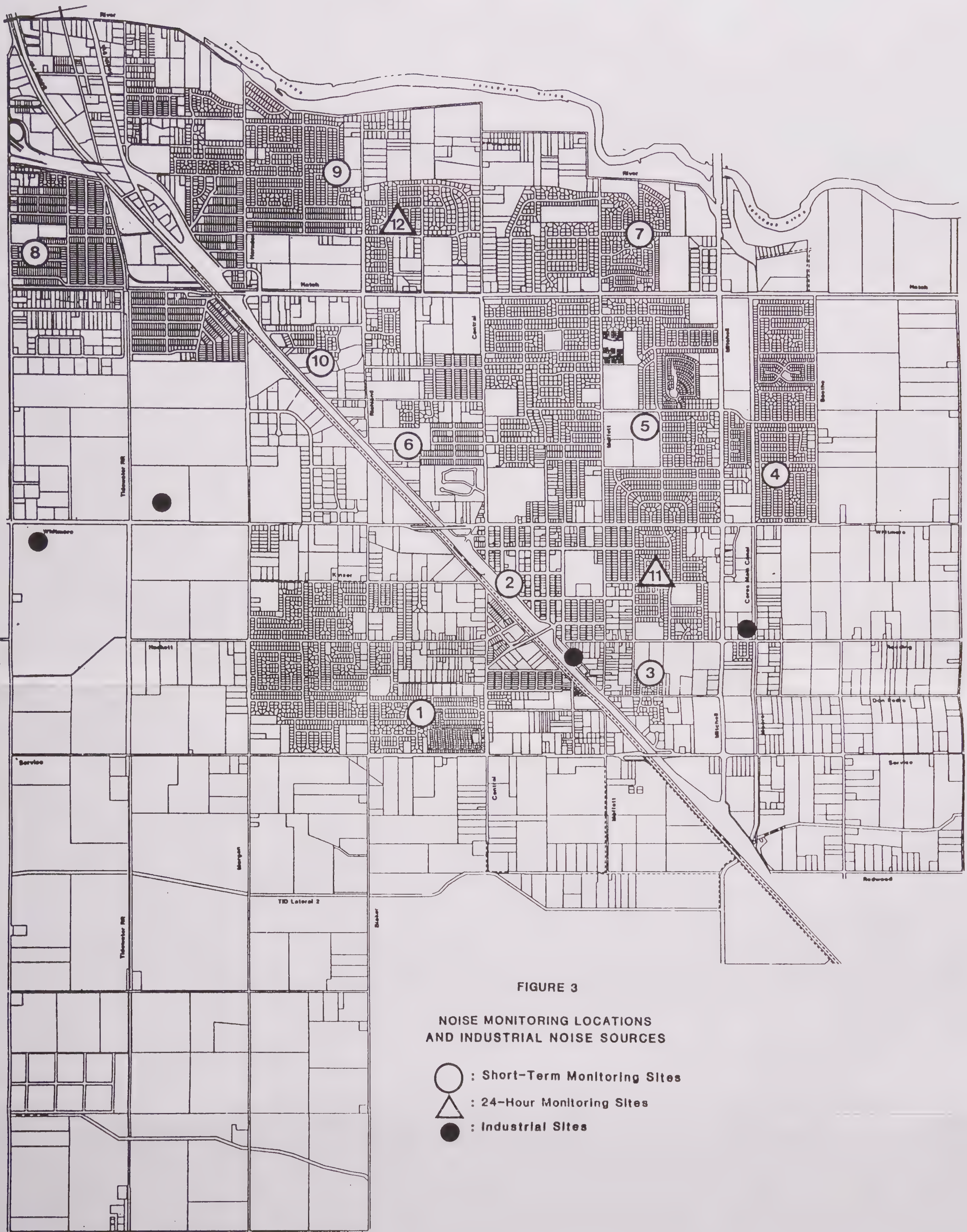


FIGURE 3

NOISE MONITORING LOCATIONS
AND INDUSTRIAL NOISE SOURCES

CITY OF CERES

Airports

The Modesto City-County Airport, operated by the City of Modesto, is the only public use airport in the near vicinity of Ceres. Noise exposure contours were prepared for this airport as part of an Airport Master Plan Study, in terms of the Community Noise Equivalent Level (CNEL) descriptor as required by the California Administrative Code, Title 21. The CNEL contours for future (Year 2009) airport operations are shown by Figure 5.

Brown-Buntin Associates field staff noted that the approach flight tracks for general aviation aircraft using the Modesto City-County Airport were generally located over the northern portion of the City of Ceres. Figure 5 shows the generalized aircraft flight tracks published in the Master Plan Study. Although the cumulative noise levels produced by aircraft using the Airport are expected to be within acceptable limits, single event noise levels may be sufficient to elicit citizen complaints. The Master Plan Study recommends that the City of Ceres consider implementing a Buyer Awareness Program in areas affected by aircraft overflights.

The Airport Master Plan Study process offers the opportunity for the City of Ceres to address the potential annoyance aspects of low altitude aircraft overflights within the city limits. Discussions with airport management and the City of Modesto could be directed towards improved control over the locations, altitudes and operational characteristics of aircraft using flight paths over the City of Ceres.

Community Noise Survey

As recommended by the State Office of Noise Control Guidelines, a community noise survey was conducted to document noise exposure in areas of the community containing noise sensitive land uses. For that purpose, noise sensitive land uses in the City of Ceres were considered to include residential areas, schools and hospitals.

Noise monitoring sites were selected to be representative of typical conditions in areas of the community where such uses were located. Short-term noise monitoring was conducted during three periods of the day and night on February 23-24, 1989, so that reasonable estimates of the L_{dn} could be prepared. Two long-term noise monitoring sites were established to record day-night statistical trends during the same period. The data collected included the L_{eq} and other statistical descriptors. Noise monitoring sites, measured noise levels and estimated L_{dn} values at each site are summarized in Table V. Monitoring sites are shown by Figure 3.

The L_{90} values given in Table V represent the noise level exceeded 90% of the time. This is considered the background noise level. Table V also lists the L_{50}, which is the level exceeded 50% of the time, and the L_{10}, which is the level exceeded 10% of the time. The L_{50} is the median noise level, while the L_{10} represents noise levels associated with infrequent loud events.

Community noise monitoring equipment consisted of a Larson-Davis Laboratories (LDL) Model 800B Precision integrating sound level meter, a Bruel & Kjaer (B&K) Type 2218 Precision integrating sound level meter, a Metrosonics dB 604 environmental noise analyzer, and an LDL Model 700B integrating sound level meter. The measurement systems were calibrated in the field prior to use with acoustical calibrators, and they comply with all pertinent requirements of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters.

The community noise survey results indicate that typical noise levels in noise sensitive areas of the City of Ceres removed from Highway 99 are in the range of 50 dB to 60 dB L_{dn}. The median (L_{50}) noise levels are typically less than 50 dBA during daytime hours and nighttime hours. Noise from traffic on Highway 99 and the Southern Pacific Railroad is the controlling factor for background noise levels in the City. In general, the areas of the City of Ceres which contain noise sensitive uses are relatively quiet except near major roadways, the railroad tracks and industrial areas.

Figure 4 illustrates ambient noise levels at the long-term monitoring sites over typical 24-hour weekdays. At 1019 Mondavi, a barking dog affected the measured L_{10} and L_{eq} values, which otherwise were typical of residential areas. Neighborhood construction affected the measured L_{10} values at 2729

Standford. In both cases, the data show that noise levels are lowest at night, increasing during the day as traffic and neighborhood activities increase.

TABLE V

SUMMARY OF MEASURED NOISE LEVELS AND ESTIMATED DAY-NIGHT AVERAGE LEVELS (L_{dn}) IN AREAS CONTAINING NOISE SENSITIVE LAND USES

Site#	Location	Date	Time	Level, dBA L_{90}	L_{50}	L_{10}	L_{eq}	L_{max}	Est. L_{dn}
1	Woodview & Don Pedro	2/23/89	14:44	43	45	48	45.9	53	54
			22:00	46	47	48	46.9	51	
		2/24/89	12:17	46	--	--	49.4	55	
2	Whitmore Park	2/23/89	15:10	60	63	66	63.6	71	67
			22:15	53	57	63	59.0	65	
		2/24/89	12:37	60	--	--	64.8	78	
3	Redwood Park	2/23/89	15:32	46	48	51	49.5	66	55
			22:29	45	47	50	47.5	53	
		2/24/89	11:44	47	--	--	51.4	60	
4	Persphone Park	2/23/89	15:58	41	46	57	56.3	78	59
			22:41	44	45	47	45.7	53	
		2/24/89	11:20	41	--	--	61.9	80	
5	Smyrna Park	2/23/89	16:26	45	53	63	58.4	69	63
			22:53	42	44	56	55.9	72	
		2/24/89	11:00	45	--	--	61.6	74	
6	Ceres Memorial Hosp.	2/23/89	16:07	52	--	--	56.3	65	60
			23:06	49	51	56	53.4	64	
		2/24/89	12:46	51	53	56	54.0	64	
7	Canyon & Valleywind	2/23/89	15:21	41	--	--	51.4	65	54
			23:43	44	45	46	44.7	46	
		2/24/89	11:30	45	47	55	53.4	71	
8	Bowie & School	2/23/89	14:30	46	--	--	52.0	62	54
		2/24/89	00:11	43	46	48	45.0	53	
			10:55	50	51	54	52.5	66	

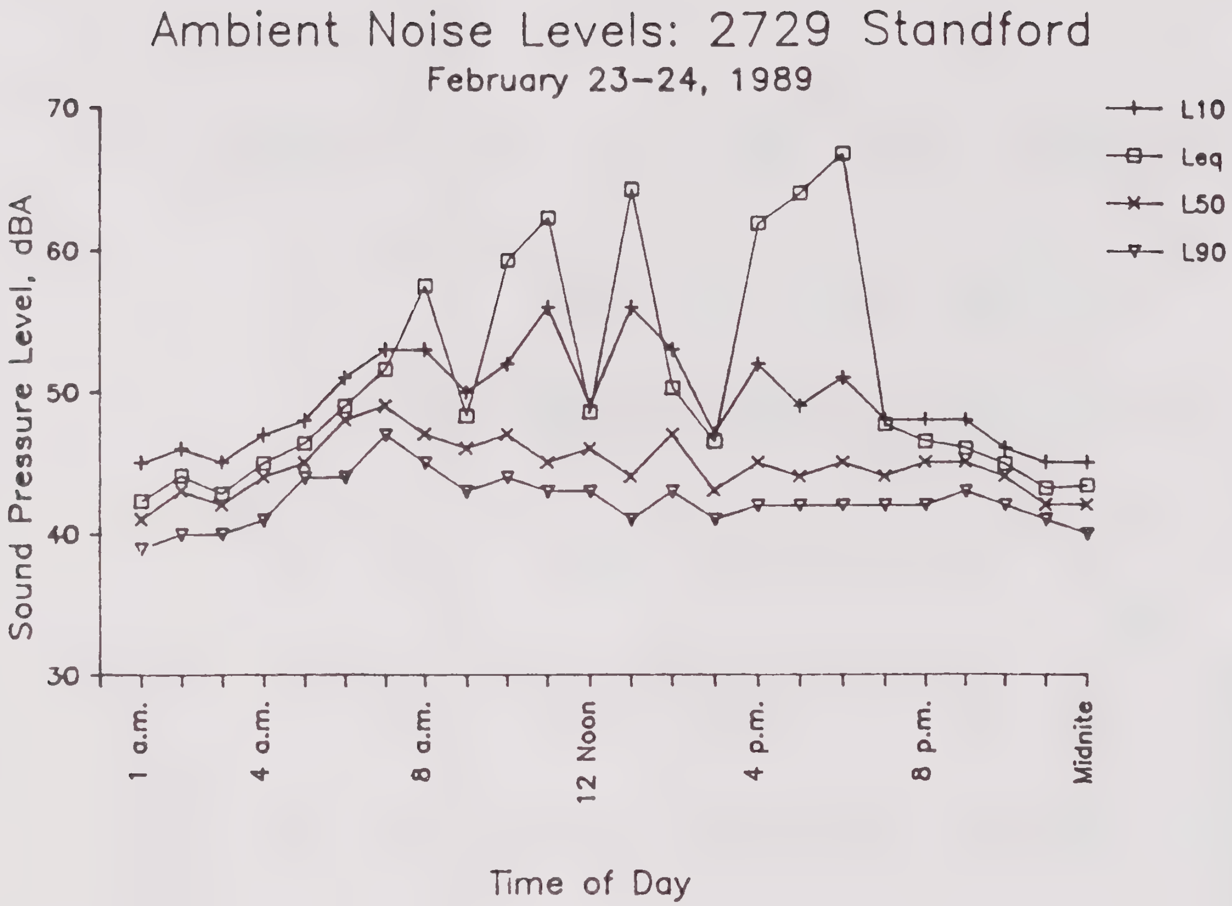
TABLE V (cont'd)

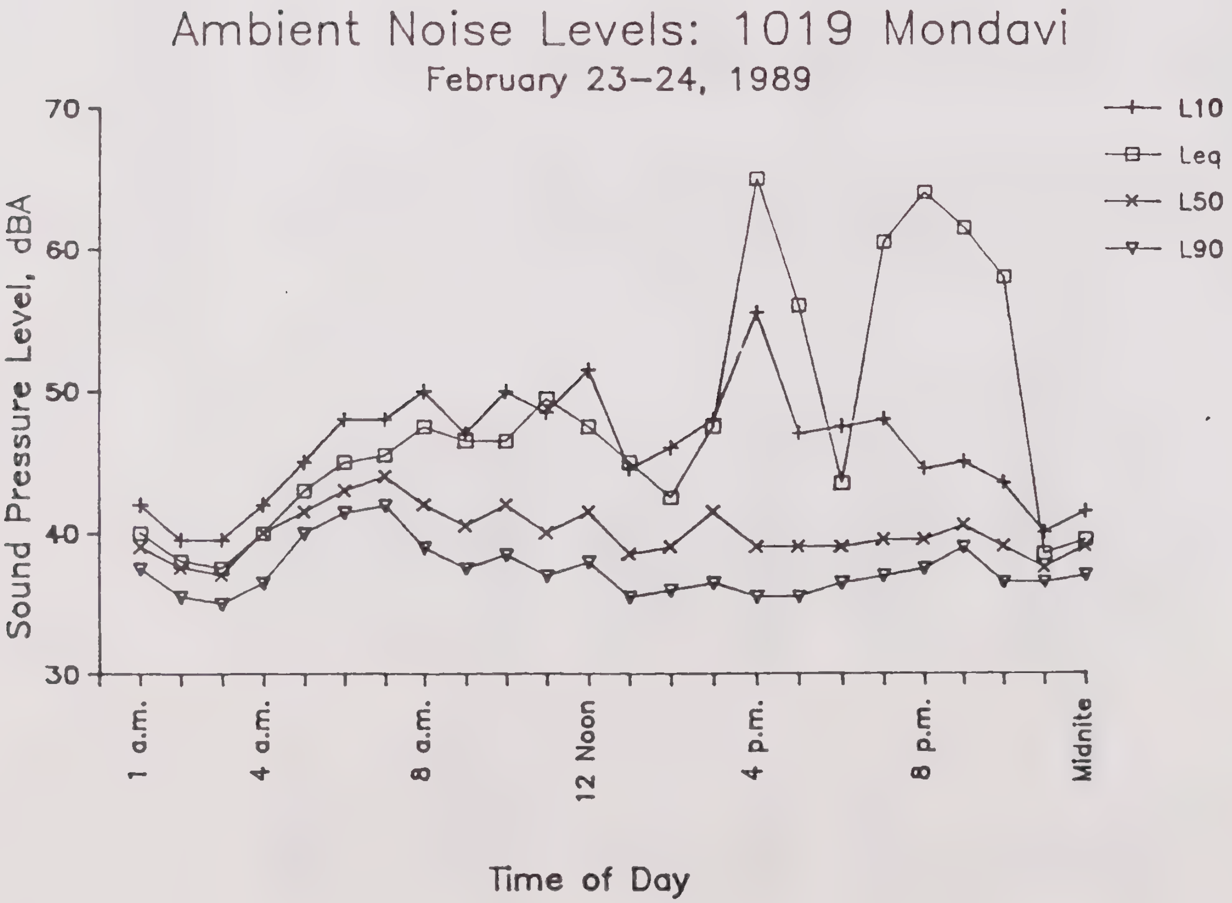
SUMMARY OF MEASURED NOISE LEVELS AND ESTIMATED
DAY-NIGHT AVERAGE LEVELS (L_{dn}) IN AREAS
CONTAINING NOISE SENSITIVE LAND USES

Site#	Location	Date	Time	Level, dBA L_{90}	L_{50}	L_{10}	L_{eq}	L_{max}	Est. L_{dn}
9	Cognac & Cadillac	2/23/89	14:59	40	--	--	53.5	70	55
			23:29	39	40	42	40.7	46	
		2/24/89	11:54	42	45	57	58.4	84	
10	Independence Park	2/23/89	15:45	55	--	--	57.2	68	58
			23:17	47	49	53	50.1	56	
		2/24/89	12:21	51	55	56	55.2	66	
11*	2729 Stanford	2/23/89	15:00	41	45	47	46.5	67	52
			23:00	40	43	45	43.2	51	
		2/24/89	12:00	43	47	49	48.6	71	
12*	1019 Mondavi	2/23/89	15:00	37	42	48	47.5	71	50
			23:00	37	38	40	38.5	51	
		2/24/89	12:00	38	42	52	47.5	64	

* = 24-hour monitoring site

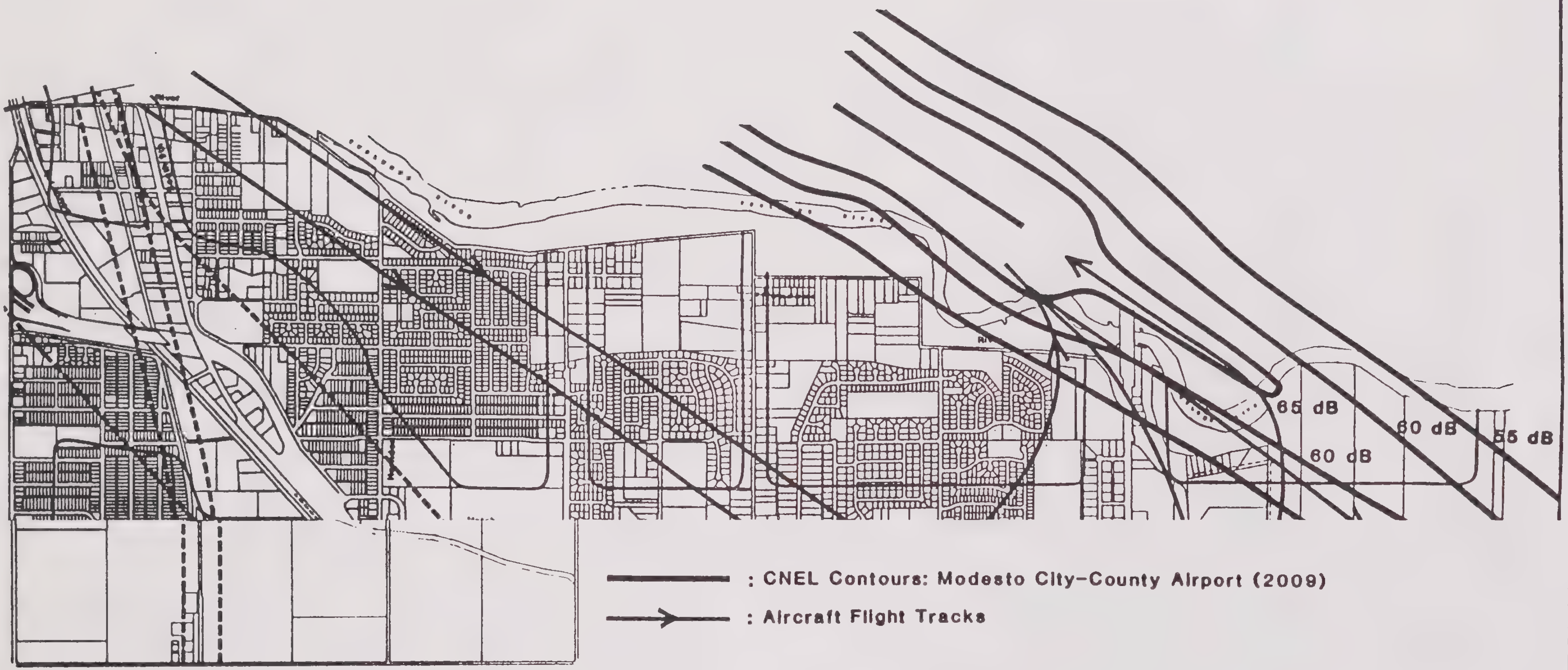
FIGURE 4


Ambient Noise Levels: 2729 Standford
February 23-24, 1989
Sound Pressure Level, dBA
70
60
50
40
30
L10
Leq
L50
L90
1 a.m.
4 a.m.
8 a.m.
12 Noon
4 p.m.
8 p.m.
Midnite
Time of Day


Ambient Noise Levels: 1019 Mondavi
February 23-24, 1989
Sound Pressure Level, dBA
70
60
50
40
30
L10
Leq
L50
L90
1 a.m.
4 a.m.
8 a.m.
12 Noon
4 p.m.
8 p.m.
Midnite
Time of Day

Noise Contour Map

Noise contours have been shown on Figure 5 to illustrate the areas within the City of Ceres which are considered to be "noise-impacted" for the purposes of the Noise Element of the Ceres General Plan. The contours represent projected future activities for each noise source, and are shown in terms of the noise metric used to describe noise impacts of the type of noise source. Noise levels produced by transportation noise sources are depicted in terms of the Day/Night Level (L_{dn}) or Community Noise Equivalent Level (CNEL). Noise levels produced by locally-regulated noise sources such as industrial facilities are shown in terms of the average noise level (L_{eq}) or maximum noise level (L_{max}) as appropriate for the nature of activities at that facility.



CITY OF CERES

State Policy and Authorization

Section 65302 (f)) of the California Government Code mandates that the General Plan for each City contain a noise element which is designed to identify and appraise noise problems in the community.

The State Office of Noise Control has established guidelines which require that current and projected noise levels be analyzed and quantified for the following noise sources:

1. Highways and freeways.
2. Primary arterials and major local streets.
3. Passenger and freight on-line railroad operations and ground rapid transit systems.
4. Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
5. Local industrial plants, including, but not limited to, railroad classification yards.
6. Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

Noise contours are required for these sources, stated in terms of the community noise equivalent level (CNEL) or day-night average level (L_{dn}), and may be used as a guide for establishing a pattern of land uses that minimizes the exposure of community residents to excessive noise.

Related State Regulations

Other State laws and regulations regarding noise control are directed towards aircraft, motor vehicles and noise in general.

California Administrative Code, Title 21, Subchapter 6, establishes noise level criteria for airports in California. These regulations apply to the airport operator, and are enforced by the County in which the airport is located. A Noise Impact Boundary based upon the 65 dB CNEL contour is established, and measures are specified to attain land use compatibility with respect to aircraft/airport noise.

The California Vehicle Code sets noise emission standards for new vehicles, including autos, trucks, motorcycles and off-road vehicles. Performance standards are also applied to vehicles operated on public streets and roadways. Section 216 of the Streets and Highways Code regulates traffic noise as received at schools near freeways. The Harbors and Navigation Code regulates noise emissions from new motorboats and those operated in or upon inland waters.

Title 24 of the California Code of Regulations establishes interior noise level standards inside multiple-occupancy dwellings affected by noise from traffic, aircraft operations, railroads and industrial facilities. The State Penal Code (Section 415) prohibits loud and unusual noise that disturbs the peace, while the Civil Code defines public nuisances which may be caused by noise. The California Environmental Quality Act includes noise as one of the factors in determining environmental impacts.

Relationship to the General Plan

The Noise Element is most related to the Land Use and Circulation Elements of the general plan. Its relationship to the Land Use Element is direct in that the implementation of either Element has the potential to result in the creation or elimination of a noise conflict between differing land uses. The Land Use Element must be consistent with the Noise Element by preventing the development of incompatible adjacent land uses, preventing impacts upon noise sensitive uses and preventing encroachment upon existing noise-producing facilities.

APPENDIX A

TECHNIQUES FOR NOISE CONTROL

Any noise problem may be considered as being composed of three basic elements: the noise source, a transmission path, and a receiver. Local control of noise sources is practical only with respect to fixed sources (e.g., industrial facilities, outdoor activities, etc.), as control of vehicular sources is generally preempted by federal or state law. Control of fixed noise sources is usually best obtained by enforcement of a local noise control ordinance. The emphasis of noise control in land use planning is therefore placed upon acoustical treatment of the transmission path and the receiving structures.

The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. The problem should be defined in terms of appropriate criteria (L_{dn}, L_{eq}, or L_{max}), the location of the sensitive receiver (inside or outside), and when the problem occurs (daytime or nighttime). Noise control techniques should then be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local aesthetic standards and practical structural and economic limits. Fundamental noise control techniques include the following:

Use of Setbacks

Noise exposure may be reduced by increasing the distance between the noise source and receiving use. Setback areas can take the form of open space, frontage roads, recreational areas, storage yards, etc. The available noise attenuation from this technique is limited by the characteristics of the noise source, but is generally 4 to 6 dBA per doubling of distance from the source.

Use of Barriers

Shielding by barriers can be obtained by placing walls, berms or other structures, such as buildings, between the noise source and the receiver.

The effectiveness of a barrier depends upon blocking line-of-sight between the source and receiver, and is improved with increasing the distance the sound must travel to pass over the barrier as compared to a straight line from source to receiver. The difference between the distance over a barrier and a straight line between source and receiver is called the "pathlength difference," and is the basis for calculating barrier noise reduction.

Barrier effectiveness depends upon the relative heights of the source, barrier and receiver. In general, barriers are most effective when placed close to either the receiver or the source. An intermediate barrier location yields a smaller pathlength difference for a given increase in barrier height than does a location closer to either source or receiver.

For maximum effectiveness, barriers must be continuous and relatively airtight along their length and height. To ensure that sound transmission through the barrier is insignificant, barrier mass should be about 4 lbs./square foot, although a lesser mass may be acceptable if the barrier material provides sufficient transmission loss in the frequency range of concern. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to intercept line-of-sight to all significant noise sources. Earth, in the form of berms or the face of a depressed area, is also an effective barrier material.

The attenuation provided by a barrier depends upon the frequency content of the source. Generally, higher frequencies are attenuated (reduced) more readily than lower frequencies. This results because a given barrier height is relatively large compared to the shorter wavelengths of high frequency sounds, while relatively small compared to the longer wavelengths of the frequency sounds. The effective center frequency for traffic noise is usually considered to be 550 Hz. Railroad engines, cars and horns emit noise with differing frequency content, so the effectiveness of a barrier will vary for each of these sources. Frequency analyses are necessary to properly calculate barrier effectiveness of noise from sources other than highway traffic.

There are practical limits to the noise reduction provided by barriers. For highway traffic noise, a 5 to 10 dBA noise reduction may often be reasonably attained. A 15 dBA noise reduction is sometimes possible, but a 20 dBA noise reduction is extremely difficult to achieve. Barriers usually are

provided in the form of walls, berms, or berm/wall combinations. The use of an earth berm in lieu of a solid wall will provide up to 3 dBA additional attenuation over that attained by a solid wall alone, due to the absorption provided by the earth. Berm/wall combinations offer slightly better acoustical performance than solid walls, and are often preferred for aesthetic reasons.

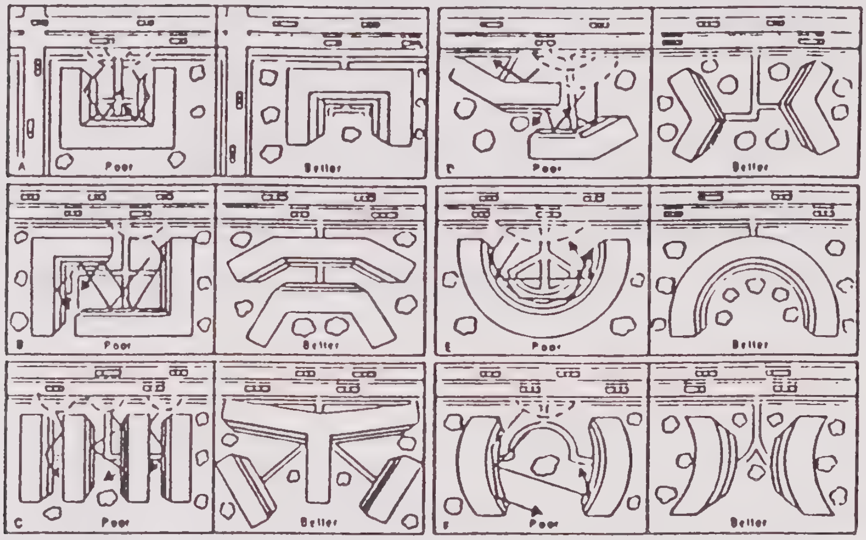
Another form of barrier is the use of a depressed noise source location, such as depressed loading areas in shopping centers or depressed roadways. The walls of the depression serve to break line-of-sight between the source and receiver, and will provide absorption if left in earth or vegetative cover.

Site Design

Buildings can be placed on a project site to shield other structures or areas, to remove them from noise-impacted areas, and to prevent an increase in noise level caused by reflections. The use of one building to shield another can significantly reduce overall project noise control costs, particularly if the shielding structure is insensitive to noise. As an example, carports or garages can be used to form or complement a barrier shielding adjacent dwellings or an outdoor activity area. Similarly, one residential unit can be placed to shield another so that noise reduction measures are needed for only the building closest to the noise source. Placement of outdoor activity areas within the shielded portion of a building complex, such as a central courtyard, can be an effective method of providing a quiet retreat in an otherwise noisy environment. Patios or balconies should be placed on the side of a building opposite the noise source, and "wing walls" can be added to buildings or patios to help shield sensitive uses.

Where project design does not allow using buildings or other land uses to shield sensitive uses, noise control costs can be reduced by orienting buildings with the narrow end facing the noise source, reducing the total area of the building requiring acoustical treatment. Some examples of building orientation to reduce noise impacts are shown in Figure A-1.

FIGURE A-1



Another option in site design is the placement of relatively insensitive land uses, such as commercial or storage areas, between the noise source and a more sensitive portion of the project. Examples include development of a commercial strip along a busy arterial to block noise affecting a residential area, or providing recreational vehicle storage or travel trailer parking along the noise-impacted edge of a mobile home park. If existing topography or development adjacent to the project site provides some shielding, as in the case of an existing berm, knoll or building, sensitive structures or activity areas may be placed behind those features to reduce noise control costs. (See Figure A-2)

FIGURE A-2

Site design should also guard against the creation of reflecting surfaces which may increase onsite noise levels. For example, two buildings placed at an angle facing a noise source may cause noise levels within that angle to increase by up to 3 dBA. The open end of "U"-shaped buildings should point away from noise sources for the same reason. Landscaping walls or noise barriers located within a development may inadvertently reflect noise back to a noise-sensitive area unless carefully located. Avoidance of these problems while attaining an aesthetic site design requires close coordination between local agencies, the project engineer and architect, and the noise consultant.

Another important aspect of site design is avoiding the creation of noise problems at adjacent noise-sensitive properties. For example, air conditioning units for multi-family developments should not be placed adjacent to living areas of adjoining single-family residences unless provided with adequate shielding. Swimming pools and outdoor activity areas such as "tot lots" should be located away from adjoining residences, and adequate shielding should be provided.

Building Design

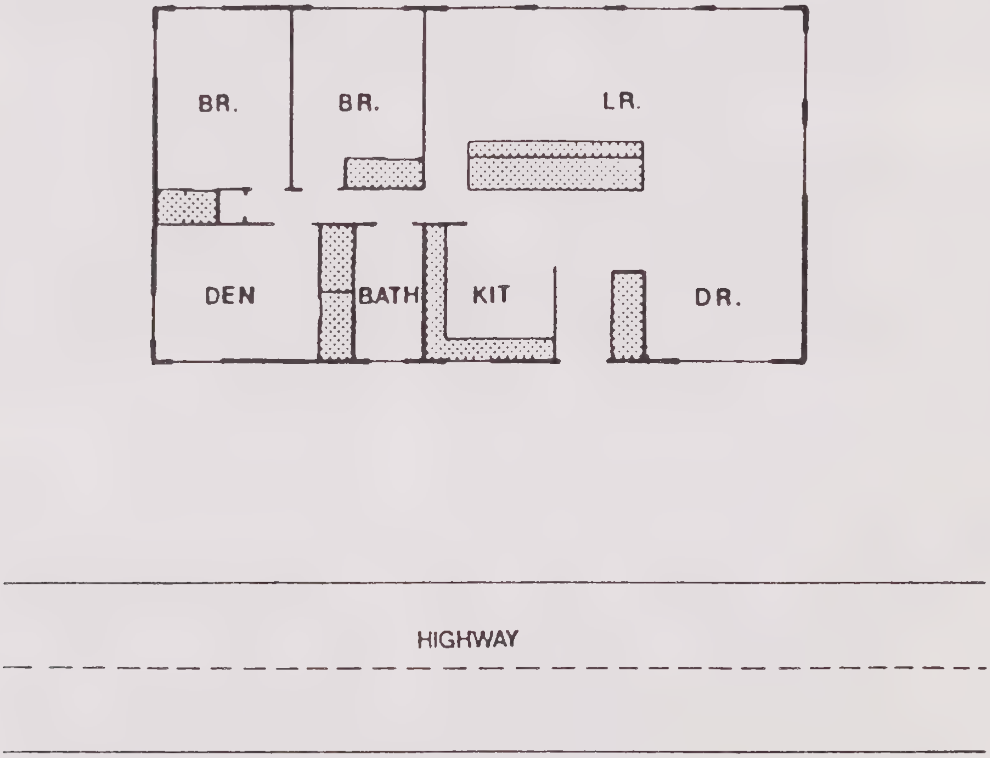
When structures have been located to provide maximum noise reduction by barriers or site design, noise reduction measures may still be required to achieve an acceptable interior noise environment. The cost of such measures may be reduced by placement of interior dwelling unit features. For example, bedrooms, living rooms, family rooms and other noise-sensitive portions of a dwelling can be located on the side of the unit farthest from the noise source, as shown by Figure A-3.

Bathrooms, closets, stairwells and food preparation areas are relatively insensitive to exterior noise sources, and can be placed on the noisy side of a unit. When such techniques are employed, noise reduction requirements for the building facade can be significantly reduced, although the architect must take care to isolate the noise impacted areas by the use of partitions or doors.

In some cases, external building facades can influence reflected noise levels affecting adjacent buildings. This is primarily a problem where high-rise buildings are proposed, and the effect is most evident in urban

areas, where an "urban canyon" may be created. Bell-shaped or irregular building facades and attention to the orientation of the building can reduce this effect.

FIGURE A-3



Noise Reduction by Building Facades

When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through acoustical design of building facades. Standard residential construction practices provide 12-15 dBA noise reduction for building facades with open windows, and 20-25 dBA noise reduction when windows are closed. Thus a 20 dBA exterior-to-interior noise reduction can be obtained by the requirement that building design include adequate ventilation systems, allowing windows on a noise-impacted facade to remain closed under any weather condition.

Where greater noise reduction is required, acoustical treatment of the building facade is necessary. Where window exposures are critical, reduction of relative window area is the most effective control technique, followed by providing acoustical glazing (thicker glass or increased air space between panes) in low air infiltration rate frames, use of fixed (non-movable) acoustical glazing or the elimination of windows. Noise transmitted through walls can be reduced by increasing wall mass (using stucco or brick in lieu of wood siding), isolating wall members by the use of double- or staggered- stud walls, or mounting interior walls on resilient channels. Noise control for exterior doorways is provided by reducing door area, using solid-core doors, and by acoustically sealing door perimeters with suitable gaskets. Roof treatments may include the use of plywood sheathing under roofing materials.

Standard energy-conservation double-pane glazing with an 1/8" or 1/4" air-space is not considered acoustical glazing, as its sound transmission loss for some noise sources is actually less than that of single-pane glazing.

Whichever noise control techniques are employed, it is essential that attention be given to installation of weatherstripping and caulking of joints. Openings for attic or subfloor ventilation may also require acoustical treatment; tight-fitting fireplace dampers and glass doors may be needed in aircraft noise-impacted areas.

Design of acoustical treatment for building facades should be based upon analysis of the level and frequency content of the noise source. The transmission loss of each building component should be defined, and the composite noise reduction for the complete facade calculated, accounting for absorption in the receiving room. A one-third octave band analysis is a definitive method of calculating the A-weighted noise reduction of a facade. A common measure of transmission loss is the Sound Transmission Class (STC). STC ratings are not directly comparable to A-weighted noise reduction, and must be corrected for the spectral content of the noise source. Requirements for transmission loss analyses are outlined by Section 2-3501 of the California Administrative Code, Title 24.

Use of Vegetation

It is often supposed that trees and other vegetation can provide significant noise attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is required to achieve a 5 dBA attenuation of traffic noise. Thus the use of vegetation as a noise barrier should not be considered a practical method of noise control unless large tracts of dense foliage are part of the existing landscape.

Vegetation can be used to acoustically "soften" intervening ground between a noise source and receiver, increasing ground absorption of sound and thus increasing the attenuation of sound with distance. Planting of trees and shrubs is also of aesthetic and psychological value, and may reduce adverse public reaction to a noise source by removing the source from view, even though noise levels will be largely unaffected. It should be noted, however, that trees planted on the top of a noise control berm can actually slightly degrade the acoustical performance of the barrier. This effect can occur when high frequency sounds are diffracted (bent) by foliage and directed downward over a barrier.

In summary, the effects of vegetation upon noise transmission are minor, and are primarily limited to increased absorption of high frequency sounds and to reducing adverse public reaction to the noise by providing aesthetic benefits.

Sound Absorbing Materials

Absorptive materials such as fiberglass, foam, cloth and acoustical tiles or panels, are used to reduce reflections or reverberation in closed spaces. Their use in exterior environmental noise control may reduce reflections between parallel noise barriers or other reflective surfaces. Maintenance of absorptive materials used outdoors is difficult, as most such materials are easily damaged by sunlight and moisture. Their application as an outdoor noise control tool is limited to special cases where the control of reflected noise is critical.

Appendix B-1

(Model RD-77-108: Brown-Buntin Associates, Inc.
alveno Emission Curves Run Date: 11-07-1987
roject Number: 89-200 Run Time: 09:20:52
ear: 1989
oft Site

NPUT DATA SUMMARY:

egment	ADT	Day%	Eve%	Nite%	%MT	%HT	Speed	Distance
1	52000.0	84.0	0.0	16.0	2.9	14.4	58.0	50.0
2	47000.0	84.0	0.0	16.0	2.9	14.4	58.0	50.0
3	54000.0	84.0	0.0	16.0	2.9	14.4	58.0	50.0
4	8700.0	87.0	0.0	13.0	1.5	3.0	45.0	50.0
5	3993.0	87.0	0.0	13.0	1.5	3.0	35.0	50.0
6	4134.0	87.0	0.0	13.0	1.5	3.0	40.0	50.0
7	24693.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
8	24917.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
9	21143.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
10	19370.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
11	23073.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
12	9156.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
13	2729.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
14	6462.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
[illegible]	6821.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
16	7688.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
17	3434.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
18	2462.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
19	2157.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
20	4561.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
21	6795.0	87.0	0.0	13.0	1.5	3.0	30.0	50.0
22	2061.0	87.0	0.0	13.0	1.5	3.0	35.0	50.0
23	30476.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
24	20157.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
25	19471.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
26	19151.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
27	18396.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
28	3404.0	87.0	0.0	13.0	1.5	8.0	35.0	50.0
29	6794.0	87.0	0.0	13.0	1.5	8.0	35.0	50.0
30	4315.0	87.0	0.0	13.0	1.5	8.0	35.0	50.0
31	21800.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
32	9000.0	87.0	0.0	13.0	1.5	8.0	55.0	50.0
33	9295.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
34	10599.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
35	14844.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
36	14419.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
37	16216.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
38	8292.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
39	2890.0	87.0	0.0	13.0	1.5	3.0	45.0	50.0

Appendix B-2

Model RD-77-108: Brown-Buntin Associates, Inc.
a.veno Emission Curves Run Date: 11-07-1989
roject Number: 89-200 Run Time: 09:31:21
ear: 2045
oft Site

NPUT DATA SUMMARY:

egment	ADT	Day%	Eve%	Nite%	%MT	%HT	Speed	Distance
1	80800.0	84.0	0.0	16.0	2.9	14.4	58.0	50.0
2	80800.0	84.0	0.0	16.0	2.9	14.4	58.0	50.0
3	80800.0	84.0	0.0	16.0	2.9	14.4	58.0	50.0
4	17400.0	87.0	0.0	13.0	1.5	3.0	45.0	50.0
5	26300.0	87.0	0.0	13.0	1.5	3.0	35.0	50.0
6	26300.0	87.0	0.0	13.0	1.5	3.0	40.0	50.0
7	36100.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
8	43400.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
9	43400.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
10	49900.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
11	49900.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
12	49900.0	87.0	0.0	13.0	1.5	10.0	45.0	50.0
13	21100.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
14	21100.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
	21100.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
1	21100.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
17	23400.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
18	23400.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
19	23400.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
20	23400.0	87.0	0.0	13.0	1.5	1.5	37.0	50.0
21	20000.0	87.0	0.0	13.0	1.5	3.0	30.0	50.0
22	6000.0	87.0	0.0	13.0	1.5	3.0	35.0	50.0
23	40600.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
24	38000.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
25	38000.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
26	45200.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
27	43500.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
28	34300.0	87.0	0.0	13.0	1.5	8.0	35.0	50.0
29	41400.0	87.0	0.0	13.0	1.5	8.0	35.0	50.0
30	43400.0	87.0	0.0	13.0	1.5	8.0	35.0	50.0
31	38200.0	87.0	0.0	13.0	1.5	8.0	45.0	50.0
32	35700.0	87.0	0.0	13.0	1.5	8.0	55.0	50.0
33	27600.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
34	31500.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
35	41600.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
36	41900.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
37	41900.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
38	44900.0	87.0	0.0	13.0	1.5	3.0	44.0	50.0
39	47200.0	87.0	0.0	13.0	1.5	3.0	45.0	50.0
	27000.0	87.0	0.0	13.0	1.5	3.0	45.0	50.0

DEFINITIONS

Ambient Noise Level - The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

A-weighted Sound Level - The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise. Sound pressure levels weighted using this filter are labeled dBA.

Community Noise Equivalent Level (CNEL*) - The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 4.77 decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

Decibel (dB) - A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

Equivalent Energy Level (Leq) - The sound level corresponding to a steady-state A- weighted sound level containing the same total energy as a time-varying signal over a given sample period. L_{eq} is typically computed over 1, 8, and 24 hour sample periods.

Day-Night Average Level (Ldn*) - The average equivalent A- weighted sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10 p.m. and before 7:00 a.m.

Lmax - The maximum A-weighted noise level recorded during a noise event.

L(n) - The sound pressure level in decibels which is exceeded n% of the time during a given sample period. For example, the L_{10} is the level exceeded 10% of the time. $L_{(n)}$ values are statistical descriptors of variation in the noise environment. The L_{10}, L_{50} and L_{90} are commonly used for this purpose.

Noise Exposure Contours - Lines drawn about a noise source indicating constant energy levels of noise exposure. CNEL and L_{dn} are the metrics used most often to describe community exposure to noise.

Sound Exposure Level (SEL) - The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the level of the time-integrated A-weighted squared sound pressure for a stated time interval or event, based

on the reference pressure of 20 micropascals and a reference duration of one second. Also described as Single Event Noise Exposure Level (SENEL).

* CNEL and L_{dn} represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the equivalent energy exposure for a shorter time period, typically one hour.

BIBLIOGRAPHIC REFERENCES

California Office of Noise Control, Guidelines for the Preparation and Content of Noise Elements of the General Plan, February 1976.

U.S. Department of Transportation, Federal Highway Administration, FHWA-RD-77-108, FHWA Highway Traffic Noise Prediction Model, December 1978.

Wyle Laboratories, Wyle Research Technical Memorandum Number 59197-1, Simplified Procedure for Assessment of Noise Emitted by On-Line Railroad Operations, March 15, 1974.

PERSONS AND ORGANIZATIONS CONTACTED

Mendoza, Al, U.P. Railroad, 2/27/89
Roam, Charlie, S.P. Railroad, 2/28/89
Crowther, Robert, Plant Engineer, Procter and Gamble, 12/5/86
Melvin, Wayne, Ceres Porta-Mix Concrete, 2/24/89
Mello, Richard, President, Northern Refrigerated Transport, 2/28/89

ICE OF DETERMINATION

RECEIVED
JUN 22 1990
CLERK-RECORDER
LIZA R. KING

FOR USE BY COUNTY CLERK

County Clerk
County of Stanislaus
Modesto, CA

FROM: City of Ceres
Planning and Community
Development Department
P O Box 217
Ceres, CA 95307-0217

ECT: Filing of NOTICE OF DETERMINATION in compliance with Section 21108 or 21152 of the Public Resources Code.

NAME OF APPLICANT: City of Ceres
ASSESSOR'S PARCEL NO: N/A STATE CLEARINGHOUSE NO:
PLANNING AREA: N/A SECTION: TOWNSHIP: RANGE:
NEAREST CITY OR COUNTY ROAD INTERSECTION: N/A

[X] GENERAL PLAN AMENDMENT 90-01 [ ] REZONING FROM ______ TO ______

[ ] TENTATIVE PARCEL MAP [ ] SUBDIVISIONS TO SPLIT ____ ACRES INTO ____ LOTS

SUBDIVISION NAME:

[ ] CONDITIONAL USE PERMIT TO ALLOW:

[ ] PUBLIC WORKS PROJECT:

[ ] OTHER:

The CITY OF CERES City Council Department [X] approved [ ] disapproved this project on 6-11-90 (DATE)
and made the following determinations:

1) Project [ ] will [X] will not have a significant effect on the environment.

2)* [ ] An environmental impact report was prepared pursuant to provisions of CEQA.

* [X] A negative declaration was prepared pursuant to provisions of CEQA.

3) Mitigation measures [ ] were [ ] were not adopted for this project.

A statement of overriding considerations [ ] was [ ] was not adopted.

* The environmental impact report or negative declaration and record of project approval may be reviewed at the CITY OF CERES PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT, 2720 Second Street, Ceres, California.

Prepared by:
Blanca de la Torre

6-12-90
Date

NOTICE:

Public Resources Code Section 21152 (A) and Section 15075 of the CEQA Guidelines requires local agencies to submit this information to the County Clerk. The filing of the Notice starts a 30-day Statute of Limitations on court challenges to the approval of the project under Public Resources Code Section 21167. Failure to file the notice results in the Statute of Limitations being extended to 180 days after the City decides to carry out or has approved the project, Section 15075.

CITY OF CERES
NEGATIVE DECLARATION
FOR

FILE NUMBER(S): GPA 89-01

PLANNING AREA: ENTIRE CITY OF CERES

NAME OF APPLICANT: CITY OF CERES ADDRESS OF PROJECT: 2220 MAGNOLIA AVE

ASSESSOR'S PARCEL NUMBER: N/A NEAREST ROAD INTERSECTION: N/A

☒ GENERAL PLAN AMENDMENT: ~~FROM~~ UPDATE OF NOISE Element

☐ TENTATIVE PARCEL MAP ☐ SUBDIVISION TO SPLIT ____ ACRES INTO ____ LOTS

SUBDIVISION (NAME) ______________________

☐ CONDITIONAL USE PERMIT TO ALLOW: ______________________

☐ ARCHITECTURAL REVIEW; PROJECT DESCRIPTION: ______________________

☐ PUBLIC WORKS PROJECT: ______________________

☐ OTHER: ______________________

REASONS THE PROJECT WILL NOT HAVE A SIGNIFICANT ENVIRONMENTAL IMPACT:

☑ No significant environmental concerns were identified during the Initial Study.

☐ Other: ______________________

NOTICE:

In accordance with the authority and criteria contained in the California Environmental Quality Act CEQA) State Guidelines, and City of Ceres Guidelines for the Implementation of CEQA, the Environmental Review Committee analyzed the project and determined that the project will not have a significant impact on the environment. Based on this finding, the Planning and Community Development Department hereby files this NEGATIVE DECLARATION. A period of 21 days from the date of filing of this negative declaration will be provided to enable public review of the project specifications and this document prior to action on the project by CITY OF CERES. A copy of the project specifications is on file in the City of Ceres Planning and Community Development Department, 2720 Second Street, Ceres, CA 95307.

Sections: 15205, 15206, 15070, 15071, 15072, 15073

Jake Payne
PREPARED BY

3-8-90
DATE

ATTACHMENTS: Initial Study, Mitigation Measures

NOTE: Public review will be 30 days when projects are within the scope of Sections 15205, 15206, and 15073(b), (c), (d).

posted in Newspaper april 13 ~~March 13~~, 1990
posted at City Hall 3-8-90

NEGDEC

RESOLUTION NO. 90 - 95

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CERES RESCINDING RESOLUTION NO. 77-177 WHICH ESTABLISHED THE NOISE ELEMENT FOR THE CERES GENERAL PLAN, AND ADOPTING GENERAL PLAN AMENDMENT 90-01 TO AMEND THE GENERAL PLAN FOR THE CITY OF CERES BY ADOPTING A NEW NOISE ELEMENT FOR THE CITY OF CERES AND ITS SPHERE OF INFLUENCE.

WHEREAS, the existing noise element for the Ceres General Plan was duly adopted by the City Countil of the City of Ceres on November 14, 1977, pursuant to Resolution No. 77-177; and,

WHEREAS, the City of Ceres duly commenced proceedings to revise, update, and amend the Noise Element of the General Plan of the City of Ceres, and retained the firm of Brown-Buntin Associates to provide consulting services for the purpose of updating, and amending the Noise Element of the Ceres General Plan; and,

WHEREAS, the said consultants have duly caused to be prepared a proposed NOISE ELEMENT OF THE CITY OF CERES GENERAL PLAN, dated February 16, 1990, a copy of which is on file in the Office of the City Clerk of the City of Ceres; and,

WHEREAS, the Planning Commission of the City of Ceres, at its regularly scheduled meeting of May 7, 1990, duly held a public hearing for the purpose of considering the proposed General Plan Amendment 90-01, which amendment proposed the adoption of a new Noise Element for the City of Ceres General Plan and its sphere of influence; and,

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& ANDERSON
125 McHENRY AVE.
MODESTO, CALIF. 95354

WHEREAS, following said public hearing, the Planning Commission of the City of Ceres duly made certain findings, approved the negative declaration filed with regard to said matter, and further recommended to the City Council of the City of Ceres that the proposed NOISE ELEMENT OF THE CITY OF CERES GENERAL PLAN, dated February 16, 1990, be approved; and,

WHEREAS, at its regularly scheduled meeting of June 11, 1990, the City Council of the City of Ceres duly held a public hearing to consider the recommendation of the Planning Commission of the City of Ceres; and,

WHEREAS, following said public hearing, the City Council of the City of Ceres did duly approve the negative declaration filed with regard to said matter, and did further make the following findings:

1. That General Plan Amendment 90-01 proposes an update to the Noise Element of the Ceres General Plan.

2. That a significant number of changes have occurred with respect to land use and traffic patterns within the City of Ceres which necessitate a change and update of the Noise Element of the Ceres General Plan.

3. That the Ceres Environmental Review Committee has met and a negative declaration has been filed with regard to said matter.

4. That all public hearings required with regard to this matter have been properly noticed and advertized.

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& ANDERSON
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5. That the Noise Element for the City of Ceres General Plan has been updated to be in conjunction and compatible with the projected update of the Circulation Element for the Ceres General Plan.

NOW, THEREFORE, IT IS HEREBY RESOLVED by the City Council of the City of Ceres as follows:

1. City of Ceres Resolution No. 77-177, dated November 14, 1977, which resolution adopted the existing Noise Element of the Ceres General Plan, is hereby rescinded.

2. That certain document entitled NOISE ELEMENT, CITY OF CERES GENERAL PLAN, dated February 16, 1990, a copy of which is on file in the Office of the City Clerk of the City of Ceres, and incorporated herein by this reference, is hereby adopted as the official Noise Element of the City of Ceres General Plan and its sphere of influence.

The foregoing resolution was introduced at a regular meeting of the City Council of the City of Ceres held on the 25th day of June, 1990, by Councilmember Hinton who moved for its adoption, said motion being duly seconded, was upon roll call, passed and adopted by the following votes:

AYES: COUNCILMEMBER: McKay, Hinton, Caruso, Mayor McBride

NOES: COUNCILMEMBER: None

ABSENT: COUNCILMEMBER: None

APPROVED:

Richard G. McBride

RICHARD G. McBRIDE, MAYOR

SEAL IMPRESSED

ATTEST:

Patricia E. Laffoon

PATRICIA E. LAFFOON, CITY CLERK

Law Offices Of
RUSHING, LYONS
& ANDERSON
25 McHENRY AVE.
DESTO, CALIF. 95354